



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460**

**OFFICE OF  
SOLID WASTE AND EMERGENCY  
RESPONSE**

October 27, 2005

**MEMORANDUM**

**SUBJECT:** National Remedy Review Board Recommendations for the Aerojet Superfund Site

**FROM:** Jo Ann Griffith, Chair /s/  
National Remedy Review Board

**TO:** Keith Takata, Director  
Superfund Division, Region 9

**Purpose**

The National Remedy Review Board (NRRB) has completed its followup review of the proposed cleanup action for the Aerojet Superfund Site in Sacramento, California. This memorandum documents the NRRB's advisory recommendations.

**Context for NRRB Review**

The Administrator announced the NRRB as one of the October 1995 Superfund Administrative Reforms to help control response costs and promote consistent and cost-effective decisions. The NRRB furthers these goals by providing a cross-regional, management-level, "real time" review of high cost proposed response actions prior to their being issued for public comment. The Board reviews all proposed cleanup actions that exceed its cost-based review criteria.

The NRRB evaluates the proposed actions for consistency with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and relevant Superfund policy and guidance. It focuses on the nature and complexity of the site; health and environmental risks; the range of alternatives that address site risks; the quality and reasonableness of the cost estimates for alternatives; regional, state/tribal, and other stakeholder opinions on the proposed actions, and any other relevant factors.

Generally, the NRRB makes advisory recommendations to the appropriate regional decision maker. The Region will then include these recommendations in the administrative

record for the site, typically before it issues the proposed cleanup plan for public comment. While the Region is expected to give the Board's recommendations substantial weight, other important factors, such as subsequent public comment or technical analyses of response options, may influence the final regional decision. The Board expects the regional decision maker to respond in writing to its recommendations within a reasonable period of time, noting in particular how the recommendations influenced the proposed cleanup decision, including any effect on the estimated cost of the action. It is important to remember that the NRRB does not change the Agency's current delegations or alter in any way the public's role in site decisions.

## **Overview of the Proposed Action**

Aerojet acquired the 8,500 acre site in 1953 to develop and test rocket propulsion systems to support national defense, space exploration, and satellite deployment. Historical operations and past disposal practices from industrial chemical and pesticide manufacturing and rocket propulsion systems manufacturing and testing at the Aerojet site have resulted in the discharge of chemicals of potential concern (COCs) to soil, the vadose zone and the underlying ground water. Although numerous types of chemicals have been used historically on the Aerojet site, trichloroethylene (TCE), perchlorate, N-Nitrosodimethylamine (NDMA) and to a lesser extent Freon 113 comprise the chemicals of principal concern in this operable unit.

The Perimeter Operable Unit (OU5) is proposed to fully contain ground-water contamination on the north, east, and south sides of the Aerojet Superfund Site by expanding the existing Pump and Treat (P&T) systems herein referred to as Ground-water Extraction and Treatment (GET) systems. The OU5 Remedial Investigation/Feasibility Study (RI/FS) has identified that additional modifications are needed to the existing GETs to obtain full boundary control of the contaminated ground water. In addition, Aerojet has proposed to do a voluntary 192-acre landfill relocation under State of California Integrated Waste Management oversight followed by EPA confirmation sampling to allow for unrestricted use development. The Preferred Alternative calls for the expansion of the current pumping scheme to fully contain contaminated ground water and protect down-gradient water supply wells while also removing contaminant mass to allow for shorter remedy duration once up-gradient source control is achieved. The voluntary landfill relocation to be undertaken pursuant to state law is consistent with the ground-water cleanup approach for the Region's preferred alternative.

## **NRRB Advisory Recommendations**

The NRRB reviewed the information package describing this proposal and discussed related issues with Charles Berrey, Bob Fitzgerald, and Larry Bradfish from Region 9 and Alex McDonald from the State of California on October 6, 2005. Based on this review and discussion, the Board offers the following recommendations:

1. The time required to clean up ground water to remedial action objectives (RAOs) at different zones within OU5 was estimated using ground-water flow modeling (travel times based on particle tracking). According to the Region, solute fate and transport was accounted for by assuming a given number of pore volumes necessary to flush a specific contaminant out of the aquifer. No discussion of the approach or assumptions used to

estimate pore volumes of flushing needed to achieve RAOs was presented to the Board. Because there can be significant uncertainties associated with estimating remedial time frames using this approach, the Board recommends that the method used and the uncertainties associated with these estimates be described in the administrative record. This issue is particularly important when estimated remedial time frames are used as a criterion to select one ground-water extraction strategy over another.

2. The Board notes that the estimated cleanup durations are based upon first controlling or removing up-gradient contaminant sources. As in the Board comments on OU3 in 2000, the Board again emphasizes the importance of expediting the cleanup efforts in the source area given the lengthy restoration time frame. Source control in the near-term is critical to reducing overall remedy cost and cleanup time frames.
3. With respect to the voluntary cleanup of the landfill, the Board understands the PRP will undertake this action pursuant to state law, and subject to state oversight and approval. As such, the Board did not specifically review this action. Nonetheless, based on information presented to the Board regarding the state's proposed cleanup levels, it appears that this voluntary cleanup should be consistent with the Region's preferred ground-water cleanup approach. The Board recommends the Region address the effectiveness of the voluntary cleanup and its relation to the Superfund response action in any potential future NPL deletion rulemaking process.
4. In its letter to the Board, Aerojet expressed concern about the ground-water cleanup goals for TCE and NDMA of 0.8 ppb and 1.3 ppt, respectively. During the meeting, the Region indicated that the contaminant level criteria, in fact, were 5.0 ppb for TCE and 2.0 ppt for NDMA. The sources of these criteria are the MCL for TCE and the State's  $10^{-6}$  risk-based value for NDMA. The Board supports the Region's use of the MCL for TCE as a containment level

The Region further indicated that due to analytical capability limitations, a practical quantitation limit (PQL) of 5 ppt would initially be considered the enforceable cleanup criteria for NDMA. The Board recommends that the decision documents clearly describe the ground-water cleanup criteria and their basis.

5. The Board notes that this remedial action will be documented in an interim Record of Decision (ROD) that need not address compliance with all ARARs at this time, e.g., cleanup levels for ground-water restoration.
6. The package presented to the Board did not contain a discussion of institutional controls (ICs) that might be necessary to ensure that the residents do not use contaminated ground water. The Region indicated at the meeting, that use restrictions are already in place under existing state authorities for on-site portions of the remedy. The Board recommends that the Region recognize these ICs in the decision documents and include others that may be necessary.

7. The package presented to the Board included a range of capture zone and limited mass removal scenarios for Zones 1 and 2. The Board notes that the number of alternatives could be simplified in the decision documents. In addition, the Board recommends that the alternatives analysis in the decision documents more fully explain how each alternative meets the Region's objectives related to plume capture and mass removal.
8. The RAO to "reduce additional mass to enhance the final remedy" is written broadly and could be interpreted in a number of ways. The Board recommends that this RAO be rephrased to clarify the purpose of this additional mass removal.

The NRRB appreciates the Region's efforts in working together with the potentially responsible parties, state, and community groups at this site. We request that a draft response to these findings be included with the draft Proposed Plan when it is forwarded to your OSRTI Regional Support Branch for review. The Regional Support Branch will work with both myself and your staff to resolve any remaining issues prior to your release of the Proposed Plan. Once your response is final and made part of the site's Administrative Record, then a copy of this letter and your response will be posted on the NRRB website.

Thank you for your support and the support of your managers and staff in preparing for this review. Please call me at (703) 603-8774 should you have any questions.

cc: M. Cook (OSRTI)  
E. Southerland (OSRTI)  
S. Bromm (OSRE)  
J. Woolford (FFRRO)  
Rafael Gonzalez (OSRTI)  
NRRB members